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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Akira KURAMORI
Serial No.: 10/523,259
Conf. No.: 8277
Filed: January 27, 2005
For: TIRE WHEEL SET AND
VEHICLE HAVING THE SAME
Art Unit: 3617
Examiner: Bellinger, Jason R.

DECLARATION UNDER RULE 37 C.F.R. 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I, Akira KURAMORI, do hereby declare as follows:

1. That I am a citizen of Japan, residing at c/o The Yokohama Rubber Co., Ltd., Hiratsuka Factory, 2-1, Oiwake, Hiratsuka-shi, Kanagawa 254-8601 Japan; that in March 2001, I graduated from the Graduate Master's Program, Faculty of Textile Science and Technology, Shinshu University, Nagano-ken, Japan and in September 2006, from the Graduate Doctoral Degree Program, Interdisciplinary Graduate School of Science and Technology, Shinshu University, Nagano-ken, Japan; that since April 2001, I have been employed by The Yokohama Rubber Co., Ltd., a Japanese corporation, of 36-11, Shimbashi 5-chome, Minato-ku, Tokyo 105-8685 Japan, the Assignee of record in the above-identified subject application; and that in the above named corporation, I have been engaged in research and development mainly in the field of methods of testing automobile drivability based on physiological measurements.

2. That I am the sole inventor of the invention described and claimed in the subject United States Patent Application Serial Number 10/523,259 (hereinafter referred to as the present application), and as such, am fully familiar with the invention of the present application (hereinafter referred to as the present invention).
3. That I am also fully aware that in the final Office Action issued in the present application, dated March 4, 2008, the present invention is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiba (JP 02071084) showing a front wheel having a greater strength (namely a greater rigidity) and weight than a rear wheel.
4. That at this time I directed and supervised the carrying out of experiments which are fully described in hereto attached sheets, the purpose of which being to testify that the present invention is not obvious but is patentable over Shiba.

EXPERIMENTS

There were produced wheel sets 1 through 12 made of an aluminum alloy, which commonly had a rim size of 16 x 6JJ and each of which comprised 2 rear wheels and 2 front wheels. With the wheel sets 1 through 11, the front wheels were made greater in rigidity than rear wheels as shown in Table 1 below by making the disks of the front wheels larger in thickness than the disks of the rear wheels. With the wheel set 12, further, rear wheels and front wheels had a same rigidity.

A tire of a tire size of 205/55R16 was set to the wheel of respective wheel sets, and respective tire-wheel assemblies were mounted on a rear-drive vehicle of a displacement of 2500 cc at an air pressure of the tire-wheel assemblies of 210 kPa, and evaluation tests were carried out in respect of the steering stability and riding comfort by test methods later to be described. The results of the evaluation tests are entered also in Table 1 below.

Also, respective tire-wheel assemblies provided same as above were mounted on a front-wheel drive vehicle of a displacement of 2000 cc, and evaluation tests in respect of understeer were conducted according to below described test method. The results of the evaluation tests are further entered in the Table 1 below.

Evaluation Test Method – Steering Stability:

The vehicle was run on a dry-road test course and evaluations with respect to the steering stability were carried out by a feeling test by a test driver. Results of evaluations are rated by a 5-point rating method at 0.5 point differences, taking the result found of the wheel set 12 as 3 points. A larger point represents a better steering stability.

Evaluation Test Method – Riding Comfort:

The vehicle was run on a dry-road test course and evaluations with respect to the driving comfort were carried out by a feeling test by a test driver. Results of evaluations are rated by a 5-point rating method at 0.5 point differences, taking the result found of the wheel set 12 as 3 points. A larger point represents a more desirable riding comfort.

Evaluation Test Method – Understeer

The vehicle was run at a speed of 30 km/hr, tracing a circle line of a radius of 30 m drawn on a test course road surface, and it was accelerated on the order of 1 km/hr every 10 seconds to determine critical velocities for the occurrence of understeer. Note that the critical velocity refers to such a maximum running speed up to which the vehicles can run a line-tracing run while the current running speed is maintained and which may be exceeded, when an understeer takes place.

Table 1

	Rigidity Increased Ratio (%)	Steering Stability	Riding Comfort	Understeer (Critical Velocity - km/h)
Wheel Set 1	5	3	3	60
Wheel Set 2	10	3.5	3	60
Wheel Set 3	20	3.5	3	60
Wheel Set 4	30	3.5	3	60
Wheel Set 5	40	3.5	3	60
Wheel Set 6	50	3.5	3	60
Wheel Set 7	60	4	3	60
Wheel Set 8	70	4	2.5	60
Wheel Set 9	100	4	2.5	61
Wheel Set 10	150	4	2	62
Wheel Set 11	200	4	2	63
Wheel Set 12	0	3	3	60

CONSIDERATIONS

From the above Table 1, it is seen that in front-wheel drive vehicles, unless the rigidity of the front wheels is made 100 % or higher than that of the rear wheels, it is impossible to attain an improvement in or relating to the understeer. Thus, it is further seen that the present invention according to which the front wheel is 10-60 % greater in rigidity than the rear wheel is outside the scope of the cited reference, Shiba (JP 02071084).

The undersigned declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the above identified application or any patent issuing thereon.

Dated: July 28, 2008

Akira Kuramori

Akira KURAMORI